

marquette

HEALTH SCIENCES

COLLEGE OF HEALTH SCIENCES MAGAZINE
2018

Global Brigades celebrates
15 years of service,
returning to Nicaragua.

MARQUETTE
GLOBAL BRIGADES
Anniversary
Nicaragua 2018

Coming Full Circle

Physician assistant students return to Global Brigades as professionals.

After the Storm

A displaced student brings help and hope to the city she was forced to leave.

Infection Detection

Dr. Nil Lodh creates techniques for disease diagnosis in sub-Saharan Africa.



DEAN'S MESSAGE



It is my pleasure to welcome you to the 2018 edition of *Health Sciences* magazine. There is much to report at this moment in time: a new building project for our Physician Assistant Studies program, multiple transformational gifts from benefactors, numerous awards and honors for our faculty and alumni, as well as large extramural grant awards to faculty scientists. It is also bittersweet to announce six very high-profile retirements, each of whom could rightly be called a faculty legend. As we celebrate their collective 150-plus years of service to the university, we also focus this volume on service more generally. Our feature story concerns the Global Brigades organization, created 15 years ago by a College of Health Sciences' student, Dr. Shital (Chauhan) Vora, H Sci '04, PT '06, and which has grown to become the world's largest student-led organization for sustainable development, with over 450 university chapters across the United States and Europe.

While Global Brigades and other notable Marquette service organizations are highlighted here, I would be remiss not to mention some of the many ongoing service enterprises that our students and faculty undertake routinely. For example, physical therapy students have created a pro bono division to the physical therapy clinic, serving local community members who would otherwise be unable to afford services; PT clinical services have also been recently expanded to the Gerald L. Ignace Indian Health Center on Milwaukee's south side. Physician assistant studies faculty and students provide free medical services at homeless shelters through organizations known as Repairers of the Breach and City on a Hill. Exercise science students and faculty are engaged in promoting healthy

lifestyles through the Youth Empowered to Succeed (YES) program that focuses on Hispanic youth in partnership with Milwaukee's United Community Center. Speech pathology faculty and students provide hearing screenings at St. Catherine's School in Milwaukee, and have established free clinic partnerships with the MCW Saturday Clinic, City on a Hill, Repairers of the Breach, and the Hartman Literacy and Learning Center. They have also partnered with Autism Speaks to raise funds and awareness. Clinical laboratory science faculty have spearheaded a wellness initiative with a local Catholic high school, and offer a Young Scholars Program on Saturdays for high school juniors and seniors. Biomedical sciences students and faculty have partnered with local organizations such as the Cream City Medical Society, the Milwaukee Advanced Health Education Center, the Milwaukee Academy of Science, and the Native American Research Center for Health, providing scientific educational programming. They also work with Project Lead the Way, which fosters interest in science, math and biomedical sciences in the local K–12 community, and provide facility tours and scientific outreach opportunities for over 4,000 high school students annually. Faculty across the college have continued the Marquette Presents series of community forums to engage the campus and community on topics of community health. These have included presentations on schizophrenia, depression, concussion, addiction, spinal cord injury, exercise as medicine, Ebola, the Zika virus, and most recently the opioid epidemic. And there is much, much more, as one might expect at a Jesuit institution that holds up service as one of its four pillars.

I hope you will enjoy a snapshot of some of the ways in which we are living out our mission in this edition. And I am deeply thankful for your partnership in promoting, and living, what we have collectively termed the "Science that Heals."

With warm regards,

William E. Cullinan, Ph.D.

Professor and Dean, College of Health Sciences



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Clinical Laboratory Science
Physical Therapy
Athletic Training
Exercise Science
Physician Assistant Studies
Speech Pathology and Audiology

Marquette Health Sciences is published for alumni, colleagues and friends of the college. Feedback and story ideas are appreciated. Please send them to jesse.lee@marquette.edu.

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Photographers: Dan Johnson: Dr. SuJean Choi, page 7. Jesse Lee: *Nine Days of Leadership; Bringing on the Brigades* (including cover); *Coming Full Circle; Mom Mode*, pages 12–35. Dan Barrett: *After the Storm*, pages 41 and 43. Getty Images: *Infection Detection*, page 44.

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PHYSICIAN ASSISTANT STUDIES PROGRAM EXPANDING TO ADDRESS PROVIDER SHORTAGE

To help address the provider gap in primary care, Marquette University began construction in spring on a new facility for its nationally ranked Physician Assistant Studies program. The building, which will be located on land the university owns on the northwest corner of West Clybourn and North 17th streets, will facilitate program growth to position it as one of the largest such programs in the region and nation.

Marquette has made an initial investment to begin construction on the PA facility, and the university invites additional support from partners and donors who see an opportunity to ensure a strong Jesuit-trained pipeline of physician assistants. The 44,000-square-foot, \$18.5 million building is expected to open in summer 2019.


100%

JOB PLACEMENT RATE FOR GRADUATES WITHIN SIX MONTHS OF COMPLETION



DEMAND FOR ENROLLMENT According to the Wisconsin Department of Health Services, the state currently has several Primary Care Health Professional Shortage Areas, including one near Marquette's campus.

Demand for enrollment in Marquette's PA program has grown, putting it in a unique position to address provider shortages. The program received nearly 1,400 applications for the 55 available seats in the current cycle, and interest continues to grow by approximately 10 percent each year.



AN EDUCATIONAL HUB The facility will serve as an educational hub for the program's existing and future clinical partners. Currently, the PA program works with clinical partners at more than 400 sites. Partners include Aurora Health Care; Froedtert Hospital and the Medical College of Wisconsin; Children's Hospital of Wisconsin; ProHealth Care; Ascension; Prevea Health; and others.

A DESTINATION PROGRAM The program, which is ranked No. 40 in the nation by *U.S. News & World Report*, has grown since it began in the 1990s into a highly recognized destination program. It boasts a 100 percent pass rate on national board exams for the past nine consecutive years, as well as a 100 percent job placement rate for graduates within six months of completion.

2019

SCHEDULED TO OPEN
IN SUMMER

400

THE NUMBER OF CLINICAL
TRAINING SITES THE PA
PROGRAM MAINTAINS WITH
ITS CLINICAL PARTNERS



LEGACY GIFTS

MICHAEL AND JEANNE SCHMITZ GIVE \$1 MILLION TO ESTABLISH A FAMILY DEPRESSION RESEARCH FUND



The fund will support depression research efforts in the college's Charles E. Kubly Mental Health Research Center, including supporting the BioDiscovery Imaging Core and BioDiscovery Cellular and Molecular Core, facilities within the Biomedical Sciences Department.

"We have experienced firsthand the devastation that depression can bring to our families with the loss of our son, Joey, a Marquette University High School graduate who committed suicide as a freshman in college," says Michael Schmitz. "We've investigated excellent research

programs at other institutions and have concluded that Dr. William Cullinan's research team (at Marquette) has the best potential for a breakthrough achievement toward more effective treatment of this disease."

"Where there is a biological basis, there is hope for effective biological treatment," says Dr. William E. Cullinan, dean of the College of Health Sciences and director of the Integrative Neuroscience Research Center at Marquette. "We've built a team of research neuroscientists who are focused on finding underlying biological bases of diseases like depression and discovering new and more effective methods of treatment. The Schmitz family's generous gift will allow us to continue to both grow and enhance our efforts."

MARQUETTE ALUMNI JIM AND KELLY MCSHANE DONATE \$1 MILLION TO SUPPORT MENTAL HEALTH RESEARCH

Jim, Eng '68, and Kelly, Arts '68, McShane have given \$1 million toward mental health research in the College of Health Sciences.

The College of Health Sciences is at the forefront of neuroscience research on mental illness. Dean William Cullinan said the McShanes' gift will establish the college's first Dean's Endowed Research Fund with special consideration given to mental health research projects.

"This gift is so significant because it will allow us to perpetually invest in research and continue our important work toward finding underlying neurobiological mechanisms," Cullinan says.

Over the past decade, Marquette faculty scholars have advanced research on identifying underlying biological bases of diseases such as depression. In 2015 the college established the Charles E. Kubly Mental Health Research Center to investigate the devastating disease.

Jim and Kelly talked about how they were inspired to give back to their alma mater: "Improving the student and Ignatian experience across campus means a great deal to us because Marquette has given so much to us in our lives."





RETIREMENTS

A NUMBER OF FACULTY LEGENDS ARE RETIRING FROM THE COLLEGE OF HEALTH SCIENCES

The College of Health Sciences offers a warm and fond farewell to these retiring faculty who have provided a combined and astonishing 150-plus years of service to the university and its students. Each has made a deep and lasting impact on the college and the professions housed within it. Enjoy a well-earned retirement, and know that your efforts and accomplishments will long be acknowledged with sincere gratitude.



Dr. Lawrence G. Pan served the university for more than three decades, including 20 years as the chair of the Physical Therapy program. Under his guidance, the program rose to the 15th-ranked PT program in the country according to *U.S. News & World Report*.



David Leigh is a long-time faculty member who came to Marquette in 1984 as the head athletic trainer, and then joined the College of Health Sciences in 1999 to help develop the Athletic Training program. Leigh was inducted into the Wisconsin Athletic Trainers Hall of Fame in 2006.



Dr. Gregory Rajala, PT '88, is an associate professor of biomedical sciences and a former member of the U.S. Speed Skating Sports Medicine Team. He's served Marquette since 1979, and was the director of the gross anatomy course for physician assistant and physical therapy students, as well as the gross anatomy course for first-year dental students.



The Speech Pathology and Audiology program is saying farewell to three faculty members, including its chair, **Dr. Linda Crowe**, who joined Marquette in 2015 after more than 20 years of professional experience in Nebraska.



Dr. Subhash Bhatnagar, associate professor of speech pathology and audiology, has served in the program for more than 30 years. His three textbooks on neuroscience and speech have been translated into multiple languages and are used at universities around the world.



Jacqueline "Jackie" Podewils has run the Marquette University Speech and Hearing Clinic as the director of clinical services for more than 12 years. A clinical assistant professor, she helped develop and coordinate the Marquette University Intensive Aphasia Therapy program, a world-renowned program that helps rehabilitate persons with chronic aphasia.



AWARDS & GRANTS

PROFESSOR RECEIVES PROMINENT UNIVERSITY RESEARCH AND TEACHING AWARDS



Dr. SuJean “Susie” Choi, professor of biomedical sciences, studies the neuro-scientific basis of feeding behaviors — what it is in our brains that makes us want to eat, and more specifically, to overeat.

“We know there are many factors that cause people to want to eat,” Choi says. “Aside from hunger, people have other motivations, including habit, boredom and pleasure. These are usually all wrapped together.”

Choi says that the reason losing weight and regulating diet can often be so difficult and confusing is because people need to consider that these multiple motivations are engaged continuously and are all driving their eating habits.

The goal of her work, and the scope of the research for which she’ll use the Way Klingler Fellowship Award — \$50,000 for three years — is to learn how we can separate these motivations and regulate the need to fuel our bodies versus the desire to eat for potentially unhealthy reasons.

Choi’s lab will investigate natural hunger suppressing compounds in the body that signal the brain to cease hunger cravings, and why those compounds often don’t properly trigger signals.

Choi says the studies funded by the Klingler research fellowship are an important complement to ongoing experiments funded by an NIH grant.

“Our grants are often very prescribed; we often can’t go beyond their parameters,” Choi says. “Sometimes, a small bit of risk can yield large benefits, and this award is really important to bridge those gaps.”

Choi is also the recipient of the Rev. John P. Raynor, S.J., Faculty Award for Teaching Excellence, and says that her motivation for teaching is to prepare her students to be as successful as possible in their careers and their lives.

“I think the important thing is that everyone learns to think on their feet, and that’s what I emphasize in my class,” Choi says. “I teach basic critical-thinking methods and logical approaches to problems that will serve the students no matter what career they pursue.”

Choi says her teaching style comes from the struggles she had when she was a student.

“I remember what it was like to be on the other side of the classroom,” she says, “and I wish I had someone who would have helped make those connections and allusions for me. There are moments when light bulbs should click, and those came much later for me. Now as a teacher, I am



motivated to find ways to address my students' approaches to learning."

Choi's students appreciate her style, her attention to detail and her personal commitment to teaching. In Choi's nomination packet, one student wrote: "Dr. Choi is able to captivate her class and draw in students; she inspired me to understand the material and to participate. Dr. Choi fuels fascination and inspires learning, even of the most challenging material."

"As faculty — as teachers — we have a responsibility to these students who we put forth in this world, because they're the ones who will lead us into the future," Choi says. "I may not be directly curing diseases or working with patients, but I want to put forth students who can think on their feet and be problem solvers."

"Sometimes, a small bit of risk can yield large benefits, and this award is really important to bridge those gaps."

— Dr. SuJean Choi



AWARDS & GRANTS

CONTINUED

DR. PAULA PAPANEK RECEIVES \$1 MILLION COMMUNITY ENGAGEMENT GRANT

Dr. Paula Papanek, associate professor and director of exercise science, received a three-year \$1 million grant from the U.S. Department of Health and Human Services' Office of Minority Health.



"The purpose of this community engagement grant — FIT or Families Inspired Together — is to work with members of the Hispanic community to determine what methods, techniques and skills are needed by adolescents and their families to achieve optimal health," Papanek says.

"That includes a healthy body weight and decreased risks of cardiovascular diseases and diabetes by focusing on novel nutritional and physical programming. This would result in increased consumption of fresh fruits and vegetables, decreased refined carbohydrate intake and an increase in daily activity."

Papanek, PT '99, says that Marquette undergraduate and professional students play a vital role as peer mentors in this family empowerment project.

Marquette President Michael R. Lovell recognized Papanek with a 2018 Difference Makers Award for her work as principal investigator of a similar grant called "Youth Empowered to Succeed," which funded novel community-based initiatives to target rising rates of obesity, youth diabetes and associated chronic diseases, as well as overall academic achievement, among minority youth.



ALUMNI AWARDS

SERVICE AWARD — STEPHANIE TREFFERT LUMPKIN, M.D.

Stephanie Treffert Lumpkin, M.D., H Sci '10, came to Marquette as a temporary transfer student from Loyola University New Orleans, displaced by Hurricane Katrina early in the fall semester of 2005. Though there only



a brief time, she had already grown to love the city of New Orleans. But she reasoned that Marquette's exciting program in biomedical sciences would provide an outstanding preparation for medical school, and so she decided to stay at Marquette. She soon created a way for her new school and classmates to help the southern city she loves.

Within a semester, she developed a new student organization to build a connection between her two schools and cities. She called it MARDI GRAS: Making a Real Difference in the Gulf Region and Areas Surrounding (see story on page 40).

Lumpkin is now a general surgery resident at the University of North Carolina—Chapel Hill School of

"I am blessed to be able to live a life where I can focus on the entirety of the Marquette mission. Success is finding a career that challenges you personally, but is also meaningful"

Medicine, treating a diverse patient population and with a keen interest in seeking solutions to the health inequities she sees among patients from different backgrounds.

"I am blessed to be able to live a life where I can focus on the entirety of the Marquette mission," Lumpkin says, adding that for her, "Success is finding a career that challenges you personally, but is also meaningful and impactful in the community. I am beyond honored to be recognized for work that I did and the career that I have chosen."

YOUNG ALUMNUS OF THE YEAR AWARD — ERIC H. BUCHL

Eric H. Buchl, H Sci '00, PA '01, was enrolled in the first class of Marquette's program in physician assistant studies. Today, he continues to blaze trails as the first physician assistant to chair a section of the North



American Spine Society and as a leader and advocate for advanced practitioners within Dallas' Medical City Healthcare system.

In addition to being chief physician assistant for orthopedic, brain and spine services at the company's flagship, Medical City Hospital, Buchl serves in a relatively new role at the hospital as supervisor for advanced practitioners, which includes 20 professionals across the hospital's medical service lines.

"My goal is to advance how physician assistants and nurse practitioners are utilized and to make sure that we have a voice to the administration," Buchl says. He says data shows better hospital scores, shorter hospital stays, possibly lower care costs and equivalent to superior outcomes for service lines that use physician assistants and nurse practitioners. At the Medical City system level, he helped organize and is chairing a brand-new advanced practitioner council.

In his longtime involvement with the North American Spine Society, a global multidisciplinary medical society, and his role as its Interdisciplinary Spine section chair, Buchl works to expand understanding among providers about evidence-based spine care.

ALUMNI AWARDS CONTINUED

DISTINGUISHED ALUMNA OF THE YEAR AWARD — HELENE STEINMILLER FEARON

Helene Steinmiller Fearon, PT '78, has done as much for the profession of physical therapy as she has for the patients who visit her private practice.



Her tireless national advocacy has raised the profession's profile and helped improve the way physical therapists are reimbursed for their services.

Fearon's passion has inspired her to "bring to others the fire of enthusiasm for participation in all aspects of physical therapy." For 25 years she represented the profession by working with the American Medical Association to create and manage billing codes for medical services (CPT codes). She was appointed to serve on the AMA's CPT Editorial Panel and later its executive committee, positions never before held by a physical therapist.

"This work was important because it facilitated a better understanding of the profession of physical therapy, its impact on patients' recovery and management of function," Fearon says.

In addition to her private practice in Phoenix that she operates with her husband, Tim Fearon, Helene is also president and partner of Physical Therapy Provider Network of Arizona, a physical therapist-owned network that includes over 160 private practices. From 2003 to 2015, she was a principal in Fearon & Levine, a national consulting firm focusing on practice management and payment policy in the outpatient rehabilitation setting. She has also provided expert testimony in cases involving fraud and abuse regarding outpatient physical therapy.

PROFESSIONAL ACHIEVEMENT AWARD — TODD DUELLMAN, M.D.

Todd Duellman's path to medical school and orthopedic surgery included exploring undergraduate studies in

pre-dental and business before settling on Spanish, then completing a master's in physical therapy. He says the vast knowledge base prepared him well for his career.



Duellman, Arts '95, H Sci '97, followed his brother, Mark Duellman, Eng '94, to Marquette. "He spoke so highly of the university and the

Marquette community that I really didn't apply elsewhere," Todd says. While Todd enjoyed his time on campus and forged close friendships, he also spent a year studying in Madrid, a valuable complement to his Spanish major. He then completed the graduate program in physical therapy and practiced for a time before completing medical school at the Medical College of Wisconsin.

Board-certified in both orthopedic surgery and sports medicine orthopedic surgery, Duellman's specialties include shoulder and knee arthroscopy, sports medicine and work-related injuries, minimally invasive knee replacement, ACL injuries and prevention, and anterior hip replacement. "I enjoy the ability to use my knowledge and skills to help improve the quality of life of others," he says.

A member of several organizations within his profession, Duellman is also an educator in minimally invasive anterior hip replacement. "I literally have taught this challenging surgical technique to hundreds of orthopedic surgeons across the country," he says. In his teaching, he takes inspiration from his father, an educator, as well as the Marquette mission of excellence, faith, leadership and service.

SPIRIT OF MARQUETTE AWARD — BRYON M. RIESCH

Bryon M. Riesch, Bus Ad '02, is the very definition of perseverance. Despite a paralyzing accident early on in his college career, he went on to earn his degree and achieve professional success, and to establish the Bryon Riesch Paralysis Foundation, aiding individuals and funding scientific discoveries that he hopes will lead to a cure.



"Marquette is where I endured some of my toughest challenges personally, but it is also where I learned to overcome them," says Riesch, who was completing his freshman year in the College of Business Administration when he sustained a C5 spinal cord injury and was told he would never walk again. In the ICU, his father asked him: Could he continue to lead a productive and good life? Riesch decided he could.

As he started his career in an IT position with Northwestern Mutual, he also established the Bryon Riesch Paralysis Foundation. "I've always had a dream of walking again, and I wanted to help make that dream a reality," he says. "I felt confident I could raise funds to support paralysis research and individuals coping with paralysis."

The foundation has raised close to \$5 million to date, some of which has supported Dr. Murray Blackmore, a Marquette associate professor of biomedical sciences and a researcher in traumatic spinal cord injury and paralysis. The foundation has provided seed funding for initiatives too novel for large federal grants, making it possible for Blackmore to test ideas, achieve promising results on at least one front, and attract federal money.

With the foundation and in all aspects of his life, "I truly try to live out Marquette's mission on a daily basis," Riesch says. "I try to do everything to the best of my ability and to lead by example." It's the gratitude of those he's helped, and the hope he shares with them, that inspire him to persevere in helping others.



AND YOU MAKE A DIFFERENCE FOR MANY.

A gift to scholarship aid will help provide a Marquette education for students with the passion, intelligence and skills to make an impact and Be The Difference.

Make a gift in support of scholarship aid at marquette.edu/giveonline or contact Kathleen Ludington at 414.288.1410.



BRINGING ON THE BRIGADES

Global Brigades celebrates 15 years of service in rural Central America. What started as an idea from a College of Health Sciences student would quickly grow beyond all expectations.



By Jesse Lee

On the first day of the medical portion of the 2018 Global Brigades trip to Nicaragua, I found myself baking in the heat of a sun much more intense than I'm used to, weighed down by 20 pounds of camera gear and wondering what I was doing here.

hadn't known what to expect when I signed up for this trip. I knew it was run by the world's largest student-led humanitarian organization, which was co-founded in 2003 by then-Marquette student Dr. Shital (Chauhan) Vora. (See page 19.) She helped grow Global Brigades into an international nonprofit with chapters in more than 475 universities throughout the United States, Canada, the United Kingdom, Germany and Switzerland. I knew the statistics, could recite the numbers. But I didn't expect the impact that the people on this trip would make.

I stood there, amazed by the 300 people who had traveled from neighboring villages, who waited

in line for hours under that baking sun to see a physician assistant, doctor or dentist. I stood in awe of our students, more than half of whom were participating in their first brigade, as they immediately went to their work, checking

people's blood pressures and temperatures, routing them to the proper health care professionals, filling pharmacy prescriptions, educating the children — so many children — about health and wellness, and keeping track of it all in Global Brigades' digital tracking system

that helps ensure consistency of care for patients who rarely have access to this kind of health care.

I was still standing, emotions welling in me and unsure of my place, when a little girl named Jesaling grabbed my hand and said, "¡Vamos a jugar!" — Let's play! That's when it clicked, when I realized that the numbers and

the United States. They're on a nine-day trip away from friends and family, with whom they have little to no contact during the trip, in a new country encountering situations of dire poverty that they have never witnessed.

"The first person I called when I got accepted to Global Brigades was my mom," says Kaylyn Garant,

I stood there, amazed by the 300 people who had traveled from neighboring villages, who waited in line for hours under that baking sun to see a physician assistant, doctor or dentist.

facts, while an important measure of the impact of Global Brigades' good work, pale in comparison to the simple humanity of a little girl reaching out, despite the language barrier, and inviting me to experience her world for the day.

I know this trip had a profound impact on me, and it profoundly impacted our first-time student brigaders as well, who shared with me what this trip meant to them.

Now Exiting the Comfort Zone

Global Brigades can be an eye-opening experience for students who have never ventured outside


a freshman biomedical sciences major from Port Washington, Wis. "It was a huge shock to her because I didn't even tell her I applied. It was a month into freshman year, and I called her and told her I was going to Nicaragua. It didn't immediately go over well, but after she learned more about Global Brigades and saw how much it meant to me, she was extremely supportive."

The students survive on adrenaline for the first two days of travel and spend the end of the second day packing medical supplies in anticipation of the three-day medical brigade, the first leg of the



Kaylyn Garant takes selfies with one of the children from the community.





Student brigaders organize a makeshift pharmacy on site in the rural village of San Jose de Pire during the medical portion of the brigades.



Jake Beery gives a piggyback ride to one of the local children.

trip. Once they're settled in at the Global Brigades compound in the town of Estelí, they

understand that the staff is there to make sure they're safe and ready to work. They are also typically accompanied by brigaders from two or three other universities.

"I wrote in my journal after the first day there and said that I knew this trip was going to change me. I was right," Garant says. "The people in Nicaragua are so thankful for what they have, even if it wasn't a lot.

"I wrote in my journal after the first day there and said that I knew this trip was going to change me. I was right."

Kaylyn Garant

"At first, I felt guilty about having all that I do, but they constantly told us they are happy we've been blessed enough to travel to Nicaragua to help them," she says. "It really changed my perspective on everything."

Jake Beery, a sophomore biomedical engineering student from Duluth, Minn., found his perspective changed as well, thanks in part to some words from a fellow brigader.

"During a reflection after our first day, another brigader, Michael Ulrich said, 'A normal experience

becomes great when you put your expectations in perspective, and a great experience becomes normal when you don't,'" Beery recalls. "That stuck with me. Sometimes it's hard to remember how lucky we are back home, but after our time in Nicaragua, I finally understand the privilege we have to live here and why this trip is so important."

For Sophie Altenburg, a sophomore biomedical sciences major and pre-dental scholar from Milwaukee, the trip was a learning experience in which the lessons reshaped her approach to service.

"I learned so much more from the extremely kind, compassionate and loving people of Nicaragua than I ever imagined," she says. "But the biggest lesson from my trip is that service is not one-sided — it's mutually beneficial. While I was able to provide families with toothbrushes and toothpaste, they taught me about friendship, loyalty, compassion and love."

Jumping in with Both Feet

There is an extensive application and interview process required in order to be invited to participate in Global Brigades. This year more than half of the students were first-time participants.

"I felt so happy when I got accepted because I honestly didn't think I was going to get in," says Sammy Deninger, a sophomore nursing major from Manhat-

tan, Ill. "There were so many people who wanted to go, and I wasn't sure that I stood out enough. I was so excited because I knew this would be the experience of a lifetime."

Nearly every first-time brigader has expressed an interest in returning — some looking to take part in a leadership role — and all hope to inspire others to take their first trip as well.

"I would tell someone considering Global Brigades that it will be the best decision of their life," Garant says. "Not only do you travel to beautiful Nicaragua and perform an important service, but you get to do it with people who quickly become your family."

"For me and for many others, this is the most impactful thing we have ever done," Beery adds.

Medical Day, Public Health Day, Water Day

There are no days of the week on a Global Brigades trip. Instead of Monday, Tuesday, Wednesday, it's Medical Day One, Public Health Day Two, etc. You're so caught up in the intensity of the work that the actual day or date ceases to matter.

With the first two days of the trip devoted to travel and medical



Sammy Deninger takes part in a daily reflection with the other brigaders.



Sophie Altenburg (left) takes time out to pose for a photo with fellow brigader Natalie Roh.

preparation, the third day of the trip is the first of a three-day medical brigade.

Students and health care professionals split

into two groups of 30 — Gold Team and Blue Team — and each morning, the teams travel nearly two hours over rocky roads to community centers in local villages.

The teams will see roughly 300 patients each day of the three-day brigade. Each team will camp within a three- to four-room structure, typically a vacant schoolhouse, to set up stations for triage, medical and dental examina-

solid and liquid waste and sends the gray water to a drainage field that is effectively a fertilized garden. Each station costs \$470, and the community members are responsible for 40 percent of that cost, or \$188, in addition to helping with the physical labor of building the station. A typical salary in the village is about \$100 a month, so they are putting up nearly two months' salary in order to acquire the basic necessity of sanitary toilet and bathing and washing facilities.

The Marquette brigaders built eight of these stations over the course of two days.

Upon completion of the public health brigade, the team has one more task — a water brigade, where they dig a trench that will one day supply water to a local community. The

brigaders work on a 75-meter stretch of the total 4,000-meter line, digging uphill and removing rocks and even larger boulders that make up the land in this region.

After that, it's time to repack and prepare for the long day of travel ahead of them to return home on the day before the start of the new semester.

And while a nine-day trip seems like a long time, it passes quickly.

"The combined medical-public health-water brigades can pass like a blur," says Dr. William

Cullinan, dean of the College of Health Sciences, who has been attending brigades since 2009.

"Students are working very hard by day, preparing for the following day's activities by night, and they return to Milwaukee exhausted on several levels.

"I think one of the most powerful aspects of the experience for students is the realization that there is a marked difference between the poverty they witness and misery. Also, in many cases it can take a trip to a third-world setting to begin to see one's local community at home with new eyes," he says.

"As the trip was coming to an end, I was having a really difficult time accepting that at the end of the week, we had to leave this beautiful country and its amazing people," Altenburg says. "However, I realized that the spirit of Global Brigades was always going to be with me no matter where I was. We can all continue to spread the mission of Global Brigades in our everyday lives — there are so many amazing service opportunities right here in Milwaukee, and we can all continue to make a positive impact."

"I would absolutely do this again," Deninger says. "I feel like I learned so much about myself in the process that I have an itch to do more, to continue to share my blessings. My life was changed in nine days, and I never knew that was possible. I now have memories for a lifetime."

"We can all continue to spread the mission of Global Brigades in our everyday lives."

Sophie Altenburg

tions and treatment, a makeshift pharmacy and an area to enter data for an electronic medical record.

After the three-day medical brigade is complete, the teams are reunited into one large group for a two-day public health brigade. The brigade again travels close to two hours to a remote village where they build "sanitation stations" for members of the community.

These stations comprise a three-part combination toilet, shower and washing station, connected to a plastic waste-holding tank that separates



Dr. Shital Vora

2018 marks the 15th anniversary of the creation of Global Brigades, now the world's largest student-led humanitarian organization.

In 2003 then physical therapy student Dr. Shital (Chauhan) Vora, H Sci '04, PT '06, traveled to Honduras with a small group of students and doctors on a medical mission. The trip would change her life, showing her the need for a sustainable model of aid for the people she met and helped.

She vowed to return and did so just a few months later, in December 2003, this time as a completely student-led endeavor. From that trip, she and a partner founded Global Brigades.

The differentiating factor of Global Brigades from other mission-based organizations is its holistic model of community engagement and empowerment. The organization structures itself into distinct brigade types: medical and dental brigades, human rights brigades, engineering and water brigades, public health brigades and business brigades.

Global Brigades trains community volunteers and works with local professionals to build a model of care with the goal of self-sustainability.

According to its website, "When all health and economic development projects are sustainably taken over by the community, we no longer send brigades, and our relationship evolves to one of follow-up and guidance. The community is then officially inaugurated as an 'Empowered Community.'"

The numbers to date are staggering. The organization has provided 1.1 million patients with medical and dental treatment. They've established 52 community banks with more than 8,000 small loans disbursed from nearly \$500,000 in investments. They've installed 35 water systems, bringing water to more than 16,000 people. And they've raised more than \$100 million in aid.

This year Vora visited the Marquette brigaders while they were in Nicaragua to celebrate the 15th anniversary and to share her vision of what the next 15 years will bring.

"I'm really excited and extremely emotional," Vora said. "It's been such a remarkable week, not only because it's the 15th anniversary, but to see that everyone involved in this process has been as passionate as day one. To be here, 15 years later, serving the needs of the communities in Nicaragua, seeing the impact that it's making on students, it's been incredible. I'm so glad to be here with this group."

"Fifteen years from now, we'll be well on our way to our goal of eradicating poverty in the countries that we're in," she continued. "We've developed a lot of programming over the years, and with our holistic model and the help of each brigader and volunteer, we're on our way to sustainably having all of these communities fully functioning on their own."





Biomedical sciences student Jessica Meaney takes a young boy's temperature in triage.



Gold Brigade team triage: Each group, Gold and Blue, would see as many as 300 patients each day.



Biological sciences student Dani McCloskey plays with children in the community.



Biomedical sciences student Kate Shannon and College of Health Sciences Dean William Cullinan take a break with some of the kids in the community.



Brigaders Ryan Nelsen-Freund and Katie Blaser participate in charla, or child education, with children from the area communities.



Global Brigades student leader Paige Reynebeau and senior brigader Jamie Koch.



Community members line up to be treated by health care professionals.





Biochemistry and molecular biology student Gabe Lopez-Rivera helps with the pharmacy.



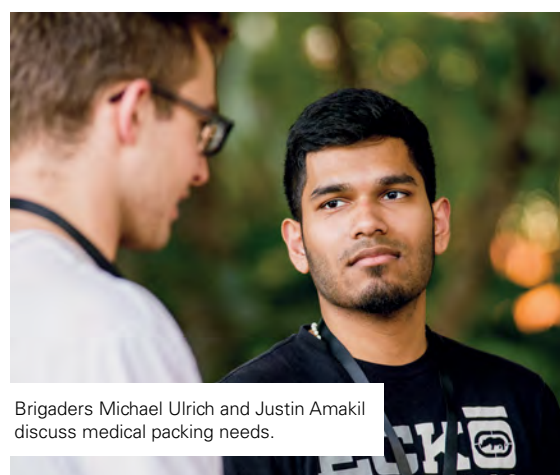
Global Brigades student leader Gabby Berg makes pottery with the women of the Cooperativa San Expedito.



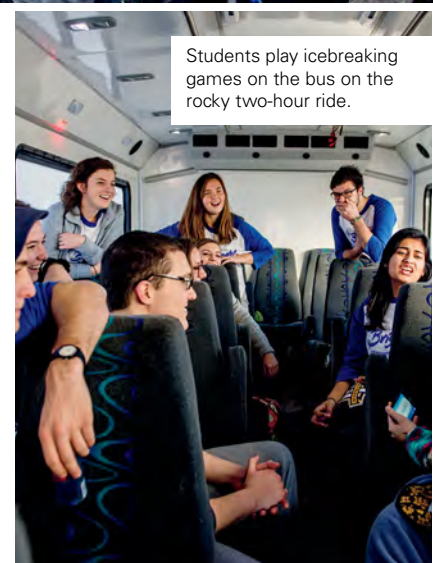
One of the cooks responsible for feeding the more than 100 brigaders and staff each day.



Brigaders work and play hard. L-R: Kyra Gudex, Liz Edsell, Adam Walker, Zoya Shams, Jessica Meaney, Paige Hunt and Neethara Abraham.



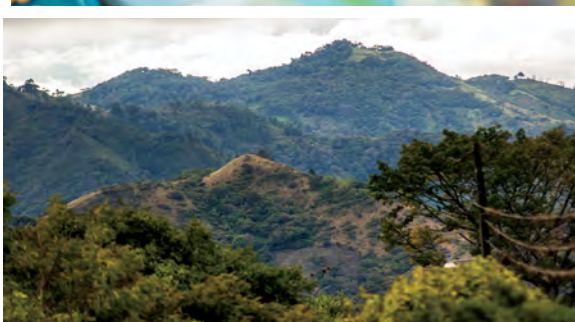
Brigaders Michael Ulrich and Justin Amakil discuss medical packing needs.



Students play icebreaking games on the bus on the rocky two-hour ride.



A student sorts vitamins for medical packs that will be given to community members during the medical brigade.



Students toted suitcases full of medicine and supplies that would be handed out to patients in the community clinics.

9 days of leadership: lessons of a lifetime

By Jesse Lee

Global Brigades is the world's largest student-led humanitarian organization, emphasis on "student-led." The January trip of the Marquette chapter of Global Brigades is led by four capable and dedicated student leaders who, under the supervision of staff leader Barb Burja (see profile, page 32), are responsible for nearly every aspect to ensure success.

Student leaders must review applications and interview prospective brigaders, coordinate informational meetings and fundraisers in the months leading up to the trip, execute medical supply organization and packing, and take responsibility for travel and logistical plans for a team of 60 students. A typical leadership position is a two-year commitment.

This year, for the 15th anniversary of the founding of Global Brigades, a group of two seniors, Gabby Berg and Liz Edsell; a junior, Adam Bonventre; and a sophomore, Paige Reynebeau, took the helm for the nine-day trip to Estelí, Nicaragua.

"If people have the opportunity to go, the experience and the people you meet are unforgettable."

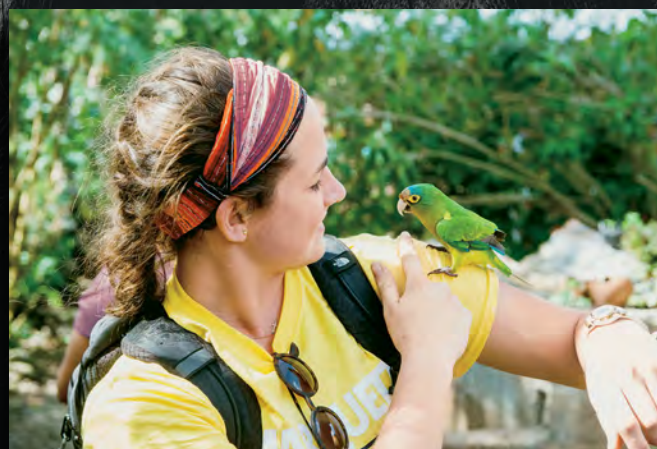
Gabby Berg

is a senior from Wauwatosa, Wis., majoring in biomedical sciences. This year marked her third Global Brigades trip and her second as a student leader.

"This was one of my favorite brigades, and I'm sad it's my last. When you get in country, you don't know how it's going to go, and we had a lot of new people this year. It's amazing how we can leave our stresses at home and be in the moment.

"There's a lot of stress leading up to it, not going to lie. You feel like it's never going to pay off, but then you get here, and you enjoy knowing that everything is going well.

"I've already cried thinking that this is my last brigade and wondering, 'Am I ever going to make it back?' I definitely hope to come back in the future; we're already talking about an alumni brigade."



Adam Bonventre

is a junior from Northville, Mich., majoring in biomedical sciences. This is his second brigade and first time leading.

“Being a leader is a completely different experience, but it’s been really impactful. I’m trying to facilitate the same experience I had last year — we have a lot of new brigaders, so I want to help them as much as I can.

“Marquette is such a special place. It all started with one idea, and 15 years later you have a group of compassionate students who want to make a difference in the world. Just to see everyone out here serving, trying to speak the language, trying to help people in these communities in Nicaragua, I feel blessed to be a leader for this brigade.”



“My first brigade, and even this year, I was a little nervous, but that’s just a sign you’re human. If you’re passionate about something, you’ll find a way to be good at it. Take what you can — whether it’s just your smile, your Spanish-speaking ability, whatever it is — take it with you and give it to the people of Nicaragua, and by doing that, you’ll have such an impactful experience.”



“You have to give it your all when you’re here, but you also have to go with the flow — the greater message to take away is that any work you do here is going to help people. You’re here to benefit others.”

Paige Reynebeau

is a sophomore from Little Chute, Wis., majoring in biomedical sciences. This is her second brigade and her first year as a leader.

“Last year as a freshman brigader I was learning what to expect on brigade, but this year as a leader, I feel like I can help those people who are confused — like I was last year — to get the most out of this trip.”

“These two brigades where I’ve been a leader have been more focused on the impact we can have in the communities, but also how we can better Marquette’s Global Brigades as a whole.”



Liz Edsell

is a senior from Oshkosh, Wis., majoring in nursing. This is her fourth Global Brigades trip and her second as a leader.

“It’s really exciting to look back and see the growth this organization has had since my freshman year, but it’s also really sad to think that I might not be here again for a while.”



Coming Full Circle

A pair of physician assistant alumni return to Nicaragua as health care professionals.

By Jesse Lee

Kyle Kinderman stands in the dirty, dusty courtyard of a remote Nicaraguan clinic in Condega, Estelí. He's surrounded by people waiting to see doctors and dentists, by kids kicking soccer balls and darting through the crowd in an extended game of tag, by dogs and roosters engaged in an uneasy pact — don't peck me, and I won't bite you.

For now, Kinderman, H Sci '13, PA '14, notices none of this. For now, his attention is solely focused on the woman seated in front of him. She's in her late 60s or early 70s, and she has a festering sore on her leg, the result of venous valves gone bad and leaking. The sore hasn't been cleaned in years. She's wrapped it in a dirty bandana and made the half-hour trek to the clinic, waiting her turn in a line of 300 to be seen by a health care professional.

Back home, Kinderman is a physician assistant in the emergency room at Children's Hospital of

Wisconsin. Here in Nicaragua, he is one of five Marquette-affiliated health care professionals who are donating their time and talent to Global Brigades, a humanitarian organization that was co-founded by a Marquette student — Dr. Shital (Chauhan) Vora, H Sci '04, PT '06 — 15 years ago and now has chapters at more than 450 universities around the world.

Kinderman is no stranger to Global Brigades. As a biomedical sciences and physician assistant student at Marquette, Kinderman traveled to Honduras and Nicaragua to provide medical assistance and to help build latrines during a public health brigade. However, he says there's a world of difference between being a student brigader and returning as a professional.

"The health care side went from shadowing the health care providers and working in the pharmacy to actually providing care, which was definitely challenging, but also rewarding," he says. "It was difficult to not have the same resources we have in the United States."



At the makeshift doctor's office in the clinic building where Kinderman sees patients, space is a resource in short supply. Because of this, he's forced to clean the woman's leg in the open courtyard. Privacy is not an option. But it's not the condition of her wound or the lack of privacy that stays with him — it's what happens when he finishes treating her.

"I finished cleaning her leg and then wrapped her from foot to knee in an ACE bandage — compression is necessary to treat an issue like hers," he says. "When I finished, though, I realized she couldn't put her shoe back on. It was this old, dirty moccasin slipper, and it was tight to begin with, but with the bandage on her foot, there was no way it would fit. I asked her if she had any other shoes with her, or any at home she could wear. She told me no, this was her only pair of shoes that she owned.

"I felt really bad about that, and I was trying to find a solution. She had to wear the bandage; removing it wasn't an option. I can't cut her only pair of shoes to help them fit. Do I try and fashion something out of duct tape to wrap around her foot? I was at a loss. Then, her daughter walked up to us, and without a word, she took off her sandals and put them on her mother's feet and took her mother's shoes for her own. That simple, silent act of love and compassion will stick with me for a long time."



Lisa (Hamann) Swiatczak hauls bucket after bucket of rocks and dumps them in a trench, back-filling the hole made for a drainage pipe that connects to a "sanitation station," a combination shower and toilet that she's just helped build.

This station belongs to a woman in her 60s named Pastora, who explained that prior to having water in their village, she'd have to walk 20 minutes one way to fill buckets of water and carry them back to her home. Pastora is one of eight people in the village of Sábana de en Medio in Jinotega, Nicaragua, who has saved the required 40 percent of the \$470 cost to receive a station. A typical month's salary in her village is 3,000 Nicaraguan córdoba, or about \$100 in U.S. currency. So each of the *beneficiarios* stakes about two months' salary on their stations.

Swiatczak, H Sci '14, PA '15, is also a physician assistant, working in emergency medicine at the Aurora Sinai Medical

Center. Like Kinderman, she was a student brigader during her time at Marquette. Unlike Kinderman, however, Swiatczak was a four-time brigader and two-time student leader, taking on the additional responsibilities of scheduling and logistics, coming up with reflection exercises





that the students participate in after their long days of working, and being in charge of travel, including making sure the 50 or so suitcases full of medicine and health care items were properly packed and organized.

Service is an important part of Swiatczak's life. In addition to her student leadership duties in Global Brigades, she received the prestigious Pedro Arrupe Award while at Marquette, which honors students who "have provided significant leadership in community service and have been advocates for people in need."

While Swiatczak enjoyed serving as a health care professional for the first time in the medical brigade, it's the public health portion of the trip that she feels is most impactful to her.

"With the medical brigade, there's a whole new perspective," she says. "I got to know the patients a little better, and I got to know about their struggles in the health care system here. But the public health brigade is so important because we're working on the sustainability of health through sanitation — by preventing parasites, infection and injury."

But it's not just health that Swiatczak sees as an important part of the public health brigade; it's also about dignity.

"Pastora told me that the only place she has now to bathe herself is behind her house, so she will wake up at 4 a.m. just so she has some privacy.

She wakes up before the sun rises, before anyone else in the village is awake, just so she can shower without anyone seeing her.

"That, to me, is about personal dignity. That's something that we take for granted, but that's a basic human right, the right to have some privacy while you clean yourself. That's as important as health."

Josh Knox is a physician assistant and a clinical associate professor in the Physician Assistant Studies program at Marquette. He taught both Kinderman and Swiatczak as students, accompanied them both on past brigades, and is here with them as colleagues for the first time.

Knox, Grad '11, knew each of them as strong student leaders and had no doubts about how they would perform as professionals on the brigade. He wasn't disappointed.

"It was meaningful to have an all-PA team on our side of the brigade," he says. "It's what is most rewarding about being an educator: seeing

your former students develop into competent, caring professionals."

Knox points out that the mission of the Marquette Physician Assistant Studies program is to produce physician assistants who are well-rounded, clinically and intellectually competent, committed to professional growth, spiritually centered, compassionate and dedicated to doing justice in generous service to others.

"Kyle and Lisa," he says, "mission accomplished."





MOM MODE

From bug spray to the buddy system, Barb Burja keeps the brigade on time, on task and in plenty of sunscreen.

By Jesse Lee

Ask any student who's volunteered for Global Brigades in the past seven years about Barb Burja, the Marquette staff leader of the organization, and they'll tell you she has two modes.

The first — and her typical state of being — is laid-back, fun, sometimes goofy and always smiling. The second is what she calls "mom mode."

"Oh, mom mode," Burja laughs. "Mom mode is keeping everybody on schedule. Sometimes in the culture, things can move slowly."

On brigade, Burja says "anybody and everybody" is subject to mom mode, including in-country staff.

"The main mission of our time in Nicaragua is that we have a job to do," she says. "If we're late, that may mean we can't see as many patients that day. So it's really holding ourselves accountable for the work we agreed to do."

Gabby Berg, a senior biomedical sciences major and one of the four student leaders of the brigade, says Burja's mom mode keeps everyone on track.

"Our parents can rest assured, even though we're thousands of miles away, we still have a brigade mom watching over us," Berg says. "The repetitive — but necessary — lectures she gives us about sunscreen, bug spray, sleep, drinking water and the buddy system are all important and keep us all organized."

Burja, CJPA '93, says that while it's important to provide constant reminders to the students, she views her role as one of guidance, giving enough room for students to grow into their own leadership styles.

"I always say I'm like the bumper guard in a bowling alley," Burja says. "If they need a lot of assistance, I kind of pull them in so that bowling ball can hit the pins. But if they're on it, I can just give them loose parameters and let them go to town."

"Barb has the ability to see beyond what a student perceives attainable for themselves," Berg says. "Personally, as a leader, and specifically during the first-semester planning stages, this can lead to what

“The main mission of our time in Nicaragua is that we have a job to do,” Burja says. “If we’re late, that may mean we can’t see as many patients that day. So it’s really holding ourselves accountable for the work we agreed to do.”

seems like unrealistic expectations. However, from my experience, it’s amazing to see how this method of tough love truly pulls individual growth out of every person she interacts with.”

Burja’s full-time job is that of records coordinator for the College of Health Sciences, which she’s held since May 2011. Shortly after her hire, she was invited to go to Honduras with the Marquette chapter of Global Brigades.

“It kind of happened by accident,” she says. “A student’s family member couldn’t go, so I was asked if I wanted to go down to Honduras over winter break. How do you say no to that?”

Burja, whose red hair and fair complexion is often mistaken for Irish, is actually Slovenian and German — both of her grandfathers immigrated to the United States. But she speaks fluent Spanish.

“I was a foreign exchange student in Venezuela in high school,” Burja says. “So I lived in Venezuela for a year. Then as an undergraduate student at Marquette I spent some time in Puerto Rico and then did a study abroad program in Guadalajara.”

Burja spoke no Spanish prior to her Venezuela trip, but she lived in a community of 500 people who spoke little to no English; she had no choice but to learn the language.

Her ability to speak Spanish combined with a medical background from her seven years serving as an emergency medical technician made her a great fit

as a staff leader, and after that first trip she became the leader for the January medical and public health brigades (the college also has a March public health brigade led by assistant dean Michelle Schuh and office associate Jen Klump).

There is an immense amount of preparation that goes into each Global Brigades trip. The medical brigade adds the additional challenges of medical-supply purchasing, organizing and packing, plus the logistical challenge of getting the medicine and other supplies down to Nicaragua.

“The student leaders are the ones coordinating the med packing,” she says. “They have to be cognizant of bag weights. They’re tracking what’s going into the bags in case there’s a problem when we get into the country or if we’re missing a bag.

“I literally let them be them — you know, to do it themselves — and I have those loose guidelines. But how they do it is up to the leaders.”

Berg, who admits that student leadership is not without its absent-minded moments, appreciates Burja’s style, which allowed Berg to find herself as a leader.

“The truth is, without Barb, Marquette Global Brigades would not be the renowned brigade that it is today,” Berg says. “She keeps us on track, keeps us organized, and always has the answers we need.

“I can confidently say, on behalf of the Marquette Global Brigades family, that we are beyond grateful for her genuine love and dedication year after year.”



Barb Burja gives direction to physician assistant Lisa Swiatczak, Global Brigades program associate Kaitlin Ostling, and physician assistant Kyle Kinderman.

“The truth is, without Barb, Marquette Global Brigades would not be the renowned brigade that it is today. She keeps us on track, keeps us organized, and always has the answers we need. I can confidently say, on behalf of the Marquette Global Brigades family, that we are beyond grateful for her genuine love and dedication year after year.”

Gabby Berg, student leader



PT supplies are in short supply in Tanzania. If you'd like to donate to help the students secure supplies for their next trip, contact the Physical Therapy program at 414.288.7161.

Finding Hope

A trip to Tanzania provides two Marquette physical therapy students with invaluable clinical experience and lessons on the unstoppable human spirit.

By Jennifer Anderson

Last year, Karene Boos, a 1995 physical therapy graduate who has served the people of Africa in myriad ways for more than 20 years, developed the idea for a physical therapy internship in Tanzania.

"There are so many benefits for students who participate in an international clinical experience," says Boos, who is currently working in Tanzania on a Fulbright scholarship. "Anytime someone is forced outside their comfort zone, especially when there are language and cultural differences, critical-thinking skills are improved."

Boos, together with Dr. Lawrence Pan, professor and chair of the Physical Therapy Department, and Dr. Danille Parker, clinical associate professor of physical therapy, created a program and developed a rigorous and competitive application process. In the end, two physical therapy students, Bailey Peck and Meril Mani, were chosen for the monthlong clinical that took place this past December.

Once selected, the two students started a GoFundMe campaign to solicit funds for basic PT supplies they knew were in short supply in the Tanzanian hospital where

they would work. They raised nearly \$1,000 and brought with them to Tanzania a suitcase stuffed with equipment such as blood pressure cuffs and air casts. When they showed up the first day with the donated supplies, the clinic supervisor wept with gratitude.

The two students knew the language barrier would be a challenge, so they frequently practiced Swahili with each other. After they arrived, the PT staff would quiz them daily and challenge them to use the language as much as possible. They learned early on how to say important things, such as the typical greeting used for older adults, "*Shikamoo*," a greeting of respect, which translates roughly into "I kiss your feet."

Both say they were treated with overwhelming kindness during their stay. "The Tanzanian people have a whole ritual they go through when they greet you," explains Mani. "Even total strangers will ask all kinds of questions and hold your hand and rub your back or give you a hug. They made us feel so welcome."

Peck and Mani got to see up close the unique difficulties that come with living in a developing country and encountered problems



From top to bottom:
Karene Boos,
Dr. Lawrence Pan and
Dr. Danille Parker

“In situations most people would find hopeless, they could find hope. They taught us to always keep trying, to do as much as you can for your patients.” **Meril Mani**

that would be rare to see in the United States. Pan knew the experience would be eye-opening for the students and would require that they be resourceful.

“In a place like Tanzania, you are in a situation where you have very little in the way of equipment, and there’s no store nearby where you can run out and buy it,” says Pan. “You have to be creative with the materials you have on hand.”

The students learned the lesson quickly. “In the U.S., we give away TheraBands like candy so that patients can gain strength using resistance exercises,” explains Peck. “Over there, we learned to teach people to do more isometric exercises like pushing into walls to strengthen their muscles or using soda bottles as hand weights.”

Not only was the equipment limited, but the injuries were frequently different or more extreme than what they might see in the United States.

“Every Wednesday, the PT department would treat children with club foot,” explains Mani. “There are so many people there with club foot. In general, there are many more congenital deformities than we see in the U.S.”

Burns from open coal fires and exposed wiring were also frequent, especially in children, and the PT staff would work with them to improve the range of motion of the burned tissue, a process so painful that the children would often start to cry when they saw the therapist approach.

Another problem the two saw with disturbing regularity was young men who had been in motorcycle accidents. The *piki piki* motorbikes are a popular mode of transportation and, between the crowded, chaotic city streets and a lack of helmets, the students saw many traumatic brain injuries. “It seemed like for every patient in the male surgical ward, it was the same story,” says Mani.

The two were impressed with the compassion they saw the therapists show to their patients, no matter how desperate the circumstances. “They care so much. It was almost overwhelming some days,” says Mani. “In situations most people would find hopeless, they could find hope. They taught us to always keep trying, to do as much as you can for your patients.”

Boos echoes this idea. “In a developing country like Tanzania, where poverty abounds, yet the human spirit is rich, this clinical experience showed them a great deal about dignity and treating all people with respect.”

When the two students finally said goodbye at the end of their monthlong experience, it was with a strong desire to return.

“We know we’re going to go back,” says Mani. “We saw how hard people fight for their lives there, and we really want to help them. It would be a blessing to be able to do that.”



Physical therapy students Meril Mani (above) and Bailey Peck worked with patients and befriended staff at the Bugando Medical Centre in Tanzania.



After The Storm

Displaced from New Orleans, health sciences student Stephanie Treffert Lumpkin created a service program that continues more than a decade later.

By Martina Ibáñez-Baldor, Comm '15



Danny Steeno, a senior majoring in biomedical sciences, was 8 years old when Hurricane Katrina struck the Gulf Coast in 2005, devastating the city of New Orleans. It was one of the deadliest hurricanes ever to hit the United States, displacing hundreds of thousands from their homes.

"I think I was too young to understand the gravity of what happened," recalls Steeno. "It wasn't until I went on my first MARDI GRAS trip to New Orleans that I actually learned everything that happened."

Thirteen years later, Steeno acts as president of the Marquette student organization MARDI GRAS, which stands for Making A Real Difference in the Gulf Region and Areas Surrounding, and just completed his 10th trip to the city this past winter break. Four times a year, a group of 70 to 100 Marquette students drive down to the Lower



Ninth Ward to continue a tradition of rebuilding the homes and hearts of residents affected by Hurricane Katrina.

Stephanie Treffert Lumpkin, M.D., H Sci '10, had just started the first week of her freshman year at Loyola University New Orleans when Hurricane Katrina hit, effectively evacuating and displacing the entire student body for the fall semester. Marquette was one of the universities that took in uprooted students, including Lumpkin. In Milwaukee, the group of students looked for a way to stay connected to the city they had left behind. "We had seen that we should be contributing back to the community that we left, but didn't have a great way of doing it," Lumpkin recalls.

MARDI GRAS was quickly conceived, being officially chartered as a student organization that





“Our mission has always stayed the same. It’s always been about disaster relief and that same desire to go and be there for a group of people, a community that needs us the most.”

Danny Steeno, MARDI GRAS President

September. By October, just eight weeks after the storm hit, the first group of MARDI GRAS volunteers ventured down to New Orleans in three minivans. The trip was the chatter around campus, news of it quickly spreading by word of mouth. By winter break, another six weeks later, they made their second trip down with 108 students. “We actually had to start turning down people toward the end,” Lumpkin remembers.

That first trip in 2005 was a reality check. The students slept in sleeping bags on the floor of an abandoned elementary school along with 600 other people. The organization they were working with told them if they wanted to eat dinner with them, they had to buy shovels. “That kind of forced us to step up our game and think about what are we really doing here,” Lumpkin recalls. “We can’t bring people down here and drain the resources. We have to make sure that we are coming prepared.”

Prepared they came. In subsequent trips, they learned how to gut houses — all you needed was a hammer and a mask. They learned how to drywall and taught it to all the volunteers before the next trip. They learned about buying building tools and supplies. They learned how to catalog all their tools, about fundraising and financing. And they learned to become leaders and about the importance of service. “Marquette really teaches that concept of vocation, that you should figure out how you can contribute and then that’s how you should do it,” Lumpkin says.



For many students, the residents of the Lower Ninth Ward have had the same effect on MARDI GRAS volunteers as the volunteers have had on them. Charlie Pocius, H Sci '17, a current physical

therapy student and former MARDI GRAS executive board member, remembers, “The most eye-opening experience I ever had was talking to those homeowners, hearing their stories and beginning to understand their resilience and resolve.”

Today, the organization is looking beyond New Orleans to other places that need disaster relief.

“Our mission has always stayed the same. It’s always been about disaster relief and that same desire to go and be there for a group of people, a community that needs us the most,” says Steeno.

In 2012 Hurricane Sandy ripped through the Northeast, and the following year MARDI GRAS started making yearly spring break trips to the New York and New Jersey areas. In 2014 students traveled to Detroit after disastrous flooding caused an estimated \$231 million in total property damage to the city. In 2016, when catastrophic flooding devastated Baton Rouge, Louisiana, a group of students already on the New Orleans trip drove the two hours to the city to aid in flood relief. And when Hurricane Harvey tore through Houston this past summer, MARDI GRAS students were eager to start planning a disaster relief trip to Texas. “We’re doing everything we can to get down there,” Steeno states.

Lumpkin, who is now a physician and training to be a surgeon, still makes frequent trips to New Orleans, where she’s able to show her husband the houses she once drywalled. With every year that passes since Hurricane Katrina, she is pleasantly surprised to hear the program is still going strong. “I’m always so impressed with young men and women stepping up to the plate and seeing that this is still something special.”







Infection Detection

Dr. Nil Lodh and colleagues create techniques for disease detection and diagnosis that can be adapted from the lab to the field in sub-Saharan Africa.

By Paula Wheeler



As the World Health Organization scales up mass drug administration for a parasitic disease prevalent in sub-Saharan Africa, Marquette's Dr. Nil Lodh and his colleagues are advancing diagnostic methods to help determine if the treatments are working in Zambia.

The disease is called schistosomiasis, a neglected tropical disease that spreads through contaminated food or water. In sub-Saharan Africa, its prevalence and intensity peak among children ages 6 to 15, causing developmental delays that impact cognition, school performance and overall quality of life.

Lodh, assistant professor of clinical laboratory science, came to Marquette in August 2015 after completing a postdoctoral fellowship at the Johns Hopkins Bloomberg School of Public Health, where he began pursuing improved molecular diagnostics for neglected tropical diseases. This past December, he and four Marquette students, together with colleagues from the University of Zambia, published a research article in the journal *PLOS One*, detailing an approach that extracts treated patients' DNA from filtered urine samples and amplifies it to check for the parasite's presence.

Using a DNA amplification technique called polymerase chain reaction, or PCR, Lodh and his colleagues were able to detect the parasite in samples from patients with low-intensity and asymptomatic infections more accurately and frequently than with existing diagnostic methods.

The problem, says Lodh, is that PCR requires expensive equipment, a steady source of electricity, varied temperatures for heating and additional

processing to observe the amplified DNA fragments. In other words, samples need to come back to the lab.

To adapt the technique for the field, Lodh is testing a method called loop-mediated isothermal amplification. Urine samples are mixed with an enzyme known as polymerase and other substances and freeze dried; field-workers need only add boiling water to heat the sample cells to combustion, which releases their DNA. "After that reaction, you can easily see if there is a positive infection because (the mix) changes color," Lodh says. He and his team have published a feasibility paper after perfecting the technique in a lab and hope to begin field-testing.

Lodh began his work on parasitic diseases while working toward his doctorate at the University of Vermont and was drawn to work in neglected tropical diseases in part to fill a need for more researchers. He is also working on projects to apply these DNA-amplification and detection techniques to strongyloidiasis, Chagas disease and other soil-transmitted helminths such as hookworms and *Ascaris*.

Funding from Marquette's Office of International Education enabled Lodh to take his undergraduate students to present findings from the published PCR and loop-mediated isothermal amplification studies in poster sessions at the American Society for Microbiology's 2017 annual meeting. Lodh, who was attracted to Marquette in part because of the teaching opportunities, says he was glad for the opportunity to expose students to "the world of researchers, policymakers and industrialists, and how they think, and where the field of clinical diagnostics is headed. (The experience) gave them that bigger-picture perspective."

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